From glowbugs@devp214.theporch.com Mon Feb 10 18:27:48 1997
Return-Path: <glowbugs@devp214.theporch.com>
Received: from devp214.theporch.com (devp214.theporch.com [192.150.244.22])
          by uro.theporch.com (8.8.5/AUX-3.1.1)
          with ESMTP id RAA13001 for <shimshon@theporch.com>;
          Mon, 10 Feb 1997 17:11:03 -0600 (CST)
From: glowbugs@devp214.theporch.com
Received: from devp214.theporch.com (localhost [127.0.0.1])
          by devp214.theporch.com (8.8.4/SCO-5.0.2) with SMTP
       id XAA01444; Mon, 10 Feb 1997 23:09:40 GMT
Date: Mon, 10 Feb 1997 23:09:40 GMT
Message-Id: <199702102309.XAA01444@devp214.theporch.com>
Errors-To: ws4s@infoave.net
Reply-To: glowbugs@devp214.theporch.com
Originator: glowbugs@devp214.theporch.com
Sender: glowbugs@devp214.theporch.com
Precedence: bulk
To: Multiple recipients of list <glowbugs@devp214.theporch.com>
Subject: GLOWBUGS digest 442
X-Listprocessor-Version: 6.0 -- ListProcessor by Anastasios Kotsikonas
X-Comment: Please send list server requests to listproc@theporch.com
Status: O

GLOWBUGS Digest 442

Topics covered in this issue include:

Date: Mon, 10 Feb 1997 08:58:04 -0600
From: Dan Kerl <dlkerl@ro.com>
To: glowbugs@theporch.com
Subject: synchronous AM detection using tubes <repost>
Message-ID: <32FF377C.2683@ro.com>

<sorry if this shows up twice. I posted it last Thursday and
 never saw hide nor hair of it - DK >

Since I enjoy listening to short-wave programming on tube

receivers, I'm contemplating the details of a project to build a synchronous AM add-on detector using no semiconductors. While information on some of the details hasn't been too difficult to find (variable reactance-tuned oscillator for a VCO, etc.), I have trouble visualizing how to make a decent phase detector. I would also like to incorporate adaptive loop filtering, with wide bandwidth out-of-lock and narrow bandwidth in-lock. I intend to use one of those 6JH8 sheet-beam tubes that AES has on sale as the detector.

Are there any commercial examples of tube-based AM synchronous detectors that I can use for ideas? How does a tube color TV phase-lock its colorburst oscillator with the back-porch reference burst and could this technique be adapted? Mapping modern semiconductor equivalents of common PLL functions onto a tube environment can get out of hand.

Thanks,

Dan Kerl
dlkerl@ro.com

Date: Mon, 10 Feb 1997 10:32:35 -0600
From: Conard Murray <ws4s@InfoAve.Net>
To: glowbugs@theporch.com
Subject: Back on line
Message-ID: <2.2.32.19970210163235.00b0d50c@infoave.net>

Hi Guys,
The server was having problems last week as I am sure most of you know. If you posted anything last week that you want to repost, please do so. I tried to forward what I could from the error messages I got from the server, but most of the stuff just bounced right back at me.
I would rather have it in the digests twice as to never seeing it at all!
73,
Conard

.-.
. Conard Murray WS4S   Glowbugs listowner .
. 217 Dyer Avenue   ws4s@infoave.net .
.   Cookeville, TN 38501 615-526-4093   .
.   <>< Wise men still seek Him <><   .
.-.

Date: Mon, 10 Feb 1997 13:12:10 -0500 (EST)
From: rdkeys@csemail.cropsci.ncsu.edu
To: boatanchors@theporch.com, glowbugs@theporch.com
Cc: rdkeys@csemail.cropsci.ncsu.edu ()
Subject: Arcusfivus vfos at 24vdc revisited.....
Message-ID: <9702101812.AA149017@csemail.cropsci.ncsu.edu>

Over the weekend I played some more with several arcusfivus rigs as cheap vfo's for Boatanchor and Glowbug use. Basically, every arc-5 I tried worked fine at 24vdc on the plates as a stable vfo. There were a couple of gotchas, tho. 1) some 1625's don't work well at low voltages, and were prone to pulling the oscillator under load so that they would chirp slightly if the oscillator was keyed. The fix was to replace one or both 1625's and carefully tweak up the plate padding capacitor so that it was correctly in line for a plate dip. Mine were off enough that I had to tweak them just to be sure. 2) at very high power (like approaching the 500 watt input range) rf feedback into the oscillator was a problem. This was with the AN/SRT-14 being driven by the arc-5 vfo, into an end fed antenna (worked fine into a dummy load). Even bypass caps on the power and key lines did not really cure the problem. More stringent choking will probably be required on the 24vdc power line to the vfo. The vfo will work fine at powers of 200 watts or less input in the driven rig, which is where most glowbug and boatanchor rigs that need a vfo are (typically the novice class transmitters). Basically the arc-5 worked great as a vfo keyed or vox-sequenced, at any voltage from 12vdc up to 450vdc on the plates of the amplifier. At the higher plate voltages the link had to be uncoupled as much as possible to keep the driving rf voltages to the rigs down in the 2-5 volt range. At 12 or 24 vdc, the link had to be coupled as much as possible for the same 2-5 rf volts of drive. This was just using the link with minimum roller inductor for output.

I also did some testing of straight arc-5 rigs direct into the antenna, as a normal rig. At 400-450 volts on the plates of the amplifier, and the usual 20K ohm screen dropping resistor, and 15K oscillator dropping resistor with 100K to gnd, it put out a comfortable 12 watts into the antenna with two types of feed, 1) roller inductor minimum and feed to a normal antenna tuner with 50 ohm coax just like any other rig, or 2) roller inductor at half to full (tuned for max) with a 100pf series capacitor to the antenna. To get the best stable operation, it was important to make sure the final was properly aligned in its padder capacitor setting for a plate dip (or max power out). IT TENDED TO BE SOMEWHAT CHIRPY UNLESS PROPERLY PEAKED IN THE FINAL AMPLIFIER. This is best done by centering the capacitor adjustment trim arm in its position and locking the trim arm holddown screw on the underchassis amplifier padder capacitor. THEN, loosen the setscrews on the arm and

physically rotate the capacitor for the plate dip (max current out). Since we are only running these things on the ham bands, or have converted the out-of-band models to run down in the ham bands, it really does not matter that you do a proper alignment per the manual. It DOES matter that you make the plate circuit properly resonate. So, I would highly recommend that you properly dip your plates in the amplifiers. Also, make sure the under chassis selector keying relay is set to make the oscillator plate power before the amplifier cathodes are keyed. That is a must, even with the amplifier properly tuned, to minimize chirp.

If you want to run 50 ohm coax on your arc-5, you can, but you should still use the series tuned coil/capacitor network for optimizing the match to the coax. In this case, take a 100pf capacitor (50-150pf will probably work fine) and insert it in the antenna output circuit such that the link+rollercoil+capacitor are feeding your coax. It then will give the optimum match to the following stage be it an antenna direct or a rig being driven with the arc-5 as a vfo. With 24 volts on the plate, it would give well in excess of 5 volts rf into the 50 ohm line to the rig with very little link coupling (about 2 on its dial).

For simple coaxial feed, you might try the RG-58 test lead that has a BNC connector on one end and a pair of quick-clips or alligator-clips on the other end. Worked fine for me, and was easy to attach to the series capacitor.

Food for thought. Happy Glowbugging and Boatanchoring!

73/ZUT DE NA4G/Bob UP

Date: Mon, 10 Feb 97 13:16:16 cst
From: mack@mails.imed.com
To: glowbugs@devp214.theporch.com
Subject: Re: synchronous AM detection using tubes
Message-ID: <9701108556.AA855608940@mails.imed.com>

Hey Y'all:

Y'all probably heard by now that the porch.com had an outage last week. That explains lost messages.

The PLL from a TV is a good idea. I don't have any examples. There was a big article in 73 Magazine back in the late 60's. Sorry I don't know when.

A phase detector is the same thing as a DBM. Any double

balanced mixer circuit will work as a phase detector. The 6JH8 would
be a good start.

Ray Mack
WD5IFS
mack@mails.imed.com
Friendswood (Houston), TX

_____ Reply Separator _____
Subject: synchronous AM detection using tubes <repost>
<sorry if this shows up twice. I posted it last Thursday and
 never saw hide nor hair of it - DK >

<snip>
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End of GLOWBUGS Digest 442
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